UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,357	06/27/2003	Padma Prabodh Varanasi	J-3866	7780

28165 7590 09/01/2009

S.C. JOHNSON & SON, INC.
1525 HOWE STREET
RACINE, WI 53403-2236

EXAMINER	
CHORBAJI, MONZER R	
ART UNIT	**PAPER NUMBER**
1797	

MAIL DATE	DELIVERY MODE
09/01/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/608,357	VARANASI ET AL.	
	Examiner	Art Unit	
	MONZER R. CHORBAJI	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38 and 40-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38 and 40-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This final action is in response to the amendment received on 5/18/09

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 13, 25 and 37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant added the limitation, "without being heated above ambient room temperature by a heating element"; however, the disclosure does not show this exclusionary subject matter of not using a heating element. There is no teaching in the specification that recites not using a heating element. One can use a heating element that is set to heat the wick up to ambient room temperature and the fact that the specification is silent to this newly added limitation does not provide sufficient evidence that Applicant at the time of filling the application had recognition of this feature.

Applicant is requested to amend the claims by deleting this added limitation in claims 1, 13, 25 and 37. It is suggested that applicant employ closed language, such as "consisting of" to exclude additional elements, such as a heater, from the claimed invention.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 2, 4, and 7-11, 13, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine

et al. (U.S.P.N. 6,661,967) and further in view of Demarest et al (U.S.P.N. 6,361,752) and Gillett et al (U.S.P.N. 5,402,517).

Regarding claims 1, 2 and 13, Triplett discloses an article of manufacture (figure 3:10) that is plugged in a conventional electrical outlet (col.4, lines 60-62) comprising: a housing (figure 3:12); the volatile liquid in a reservoir (col.4, lines 42-46), a wick (22) extending from the reservoir upwardly in the housing, and a heater (20) in the housing, electrically connected to the plug unit (18).

Triplett fails to teach the following: not heating the wick above ambient room temperature, the inclusion of a fan, the method of calculating his various evaporation rates, (for example, measuring and calculating by drop shape analysis),the amount of volatile material carried within the enclosed reservoir, and the wick extending between the volatile liquid and the air stream.

Levine discloses a liquid vaporizer having a wick and a heating element (figure 1) where the heating element can be set to various resistance values (col.2, lines 10-15) in order to generate different levels of fragrance output (col.2, lines 4-6). Levine goes on to teach that in one embodiment, the temperature of the wick is maintained near an ambient temperature (col.10, lines 26-28; this teaching is considered to meet the newly added limitation that the wick is not being heated above ambient room temperature by a heating element). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the device in Triplett with the heating element so that different levels of fragrance output can be generated as taught by Levine (col.2, lines 4-6).

Levine fails to teach the following: the inclusion of a fan, the method of calculating his various evaporation rates, (for example, measuring and calculating by drop shape analysis),the amount of volatile material carried within the enclosed reservoir, and the wick extending between the volatile liquid and the air stream.

Demarest discloses a volatile liquid vaporizing device (figure 9:130) where a wick (figure 9:144) is extending between the volatile liquid (unlabeled volatile liquid material within vessel 136 in figure 9) and the air stream, which is created by the fan shown as 156 in figure 9. The use of a fan creates a flow of air through the housing and across the carrier material where vapors from the material are drawn into the air flow through the housing and are exhausted into the ambient environment (col.8, lines 61-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide a fan into the modified housing of Triplett/Levine, since the use of a fan creates a flow of air through the housing and across the carrier material where vapors from the material are drawn into the air flow through the housing and is exhausted into the ambient environment as shown by Demarest (col.8, lines 61-67).

Triplett, Levine, and Demarest do not specifically disclose an amount of volatile material carried within the reservoir or enclosed vessel.

Gillett discloses a fragrance vaporizing apparatus (col.1, lines 8-9) having a cylindrical housing (figure 1:48) into which a suitable amount of volatile liquid material between 1 to 20 ml is added (col.4, lines 29-30). With this volume range of volatile material, the heating element is able to control the rate of vaporization of the chemical agent and thereby extend the dispensing of the fragrance material well over 30 days

(col.1, lines 26-30 and col.3, lines 35-37). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide an amount of volatile material between 1 to 20 ml into the modified reservoir unit of Triplett/Levine as modified by Demarest, since within this volume range of volatile material, the heating element is able to control the rate of vaporization of the chemical agent and thereby extend the dispensing of the fragrance material well over 30 days (col.1, lines 26-30 and col.3, lines 35-37).

As to the limitation that the measurement and calculation of the evaporation rate being done by drop shape analysis based on 30% of the volatile liquid remaining at room temperature, Triplett, Levine, Demarest and Gillett are all silent. Different volatile liquids are known to have various different rates of evaporation which are also dependent upon temperature values, viscosity of the liquid, as well as the method of calculation. Evaporation rate at ambient room temperature property of the volatile liquids achieves a recognized result of either rapid or slow emission of, for example, deodorizing material into ambient air. It would have been obvious to one of ordinary skill in the art to choose or compose a volatile liquid having a desired evaporation rate to suite the conditions where evaporation would take place. One of ordinary skill in the art would devise a volatile liquid capable of evaporation at ambient room temperature to meet the needs of the consumer – i.e. rapid dissemination of fragrance, versus slow and steady release of a deodorant.

In addition, the disclosure does not show any evidence of criticality as to the use of the drop shape analysis method over other methods for determining evaporation

rates. It would have been obvious to one of ordinary skill in the art to determine the optimum evaporation rate calculation method by routine experimentation since evaporation rate of volatile material is recognized as a result-effective variable.

Furthermore, as to the limitation that about 90% of the volatile liquid evaporates through the wick between within one and two months under ambient conditions at ambient room temperature when the wick is exposed to the surrounding environment, Triplett exposes the wick (figure 3:22) to the surrounding environment (wick 14 is exposed to the surrounding ambient environment through vent system 16 as shown in figure 3). Triplett further teaches (col.7, lines 16-19) that the amount of evaporation of the fragrance is over 62 days or less (see table 2 and col.7, lines 16-19). As such, one of ordinary skill in the art would readily recognize that at least 90% of the volatile liquid must evaporate within 2 months at ambient room temperature. Therefore, 90% of the volatile liquid evaporates through the wick within one and two months under ambient conditions at ambient room temperature within the modified device of Triplett.

Regarding claim 4, Demarest's fan is capable of exhibiting various throughputs volumetric flow rates including the range of about 0.4 cubic feet per minute to about 0.45 cubic feet per minute. It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide the fan in the modified device housing of Triplett/Levine with the specific flow rate recited in order to provide an optimum vaporization rate of the volatile liquid

Regarding claims 7-8 and 20-21, Triplett teaches that the volatile material is fragrance or insecticide (col.4, lines 43-46).

Regarding claim 9, Triplett teaches that the volatile liquid container (figure 3:14) is releasably secured (col.3, lines 56-58) to the housing (figure 3:12).

Regarding claim 10, where the limitation that about 90% of the volatile liquid is capable of evaporating through the wick in about 2 months under ambient conditions, Triplett exposes the wick (figure 3:22) to the surrounding environment (wick 14 is exposed to the surrounding environment through vent system 16 as shown in figure 3). Triplett further teaches (col.7, lines 16-19) that the amount of evaporation of the fragrance is over 62 days or less (see table 2 and col.7, lines 16-19). As such, one of ordinary skill in the art would readily recognize that at least 90% of the volatile liquid must evaporate in about 2 months. Therefore, 90% of the volatile liquid material is capable of evaporating through the wick within one and two months under ambient conditions within the modified device of Triplett.

Regarding claim 11, Triplett as modified by Levine, Demarest and Gillett do not specifically teach the alignment of the wick with the fan. It would appear however, that Demarest teaches that the wick is in alignment with fan (the upper part 146 of wick 144 is immersed into the air stream created by fan 156 in figure 9 where both the wick and the fan are aligned along an imaginary z-axis). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide the fan in the modified device of Triplett/Levine in alignment with the fan in order to improve distribution of the volatile liquid.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967),

Demarest et al (U.S.P.N. 6,361,752), Gillett et al (U.S.P.N. 5,402,517) as applied to claim 1 and further in view of Lang (U.S.P.N. 7,018,644).

Triplett, Levine, Demarest and Gillett are silent with regard to specifically disclose a relative evaporation rate. It is noted that evaporation rate is a process limitation and not attributed patentable weight in a claim to the device. However, such evaporation rates are conventional in this art. See for example, Lang who discloses air freshener and insecticidal liquid compositions that are used in air freshening evaporative devices (col.1, lines 15-18). The composition is made up of a polar solvent, non-polar solvent, and a fragrance or an insecticide (col.2, lines 64-67). The components of the composition have evaporation rates that are relative to n-butyl acetate (co.4, lines 15-25 or col.6, lines 8-9. This is considered the relative evaporation rate) as such (See the Table in Example 1. For example, a non-polar solvent, Isopar M, has a relative evaporation rate of less than 1, and a polar solvent, Dowanol DPM, has a relative evaporation rate of 3). It is particularly desirable for the composition to be formulated such that no residue of the solvent remains (col.2, lines 51-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide the modified apparatus in Triplett/Levine/Demarest/Gillett with the polar/non-polar liquid composition, because upon complete evaporation no residues of the solvent remains within the device (col.2, lines 51-55).

8. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967),

Demarest et al (U.S.P.N. 6,361,752), Gillett et al (U.S.P.N. 5,402,517) as applied to claim 1 and further in view of Ito et al (U.S.P.N. 6,391,329).

Regarding claims 5-6, Triplett, Levine, Demarest and Gillett do not specifically teach the use of a fan that is operated intermittently. Ito's insecticide device uses a fan (figure 1:3) that is operated intermittently (col.12, lines 58-60) in order to attain an equilibrium concentration within the first 30-minute period and thereafter keeps releasing uniformaly and stably over 360 hours (col.13, lines 6-10). Furthermore, Ito's fan is capable of operating the air stream in an on and off of different ratio time intervals, including the ratio interval of about 1 minute to 3 minutes. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the modified article of manufacture in Triplett/Levine/Demarest/Gillett with an intermittent operating fan in order to attain an equilibrium concentration within the first 30-minute period and thereafter keeps releasing uniformaly and stably over 360 hours as taught by Ito (col.13, lines 6-10).

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967), Demarest et al (U.S.P.N. 6,361,752) and Gillett et al (U.S.P.N. 5,402,517 as applied to claim 11 and further in view He et al (US 2002/0136886 A1).

Triplett, Levine, Demarest and Gillett are silent about disclosing range values for the mean pore size of wicks. He dispenses fragrance material [0011] using polymeric wicks [0009] having average pore size from about 2 to about 70 microns [0057], because in such a pore range polymeric wicks showed no substantial fluid leakage

upon inversion [0055]. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the modified article of manufacture in Triplett/Levine/Demarest/Gillett with a wick having an average pore size from about 2 to about 70 microns in order to have a polymeric wick that shows no substantial fluid leakage upon inversion as taught by He [0055].

10. Claims 13-14 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967) and further in view of Demarest et al (U.S.P.N. 6,361,752) and Gillett et al (U.S.P.N. 5,402,517).

Regarding claims 13 and 14, Triplett discloses an article of manufacture (figure 3:10) that is plugged in a conventional electrical outlet (col.4, lines 60-62) comprising: a housing (figure 3:12); the volatile liquid in a reservoir (col.4, lines 42-46), a wick (22) extending from the reservoir upwardly in the housing, and a heater (20) in the housing, electrically connected to the plug unit (18).

Triplett fails to teach the following: not heating the wick above ambient room temperature, the inclusion of a fan, the amount of volatile material carried within the enclosed reservoir, the method of calculating his various evaporation rates, (for example, measuring and calculating by drop shape analysis), and the wick extending between the volatile liquid and the air stream.

Levine discloses a liquid vaporizer having a wick and a heating element (figure 1) where the heating element can be set to various resistance values (col.2, lines 10-15) in order to generate different levels of fragrance output (col.2, lines 4-6). Levine goes on to

teach that in one embodiment, the temperature of the wick is maintained near an ambient temperature (col.10, lines 26-28; this teaching is considered to meet the newly added limitation that the wick is not being heated above ambient room temperature by a heating element). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the device in Triplett with the heating element so that different levels of fragrance output can be generated as taught by Levine (col.2, lines 4-6).

Levine fails to teach the following: the inclusion of a fan, the amount of volatile material carried within the enclosed reservoir, the method of calculating his various evaporation rates, (for example, measuring and calculating by drop shape analysis), and the wick extending between the volatile liquid and the air stream.

Demarest discloses a volatile liquid vaporizing device (figure 9:130) where a wick (figure 9:144) is extending between the volatile liquid (unlabeled volatile liquid material within vessel 136 in figure 9) and the air stream, which is created by the fan shown as 156 in figure 9. The use of a fan creates a flow of air through the housing and across the carrier material where vapors from the material are drawn into the air flow through the housing and are exhausted into the ambient environment (col.8, lines 61-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide a fan into the modified housing of Triplett/Levine, since the use of a fan creates a flow of air through the housing and across the carrier material where vapors from the material are drawn into the air flow through the housing and is exhausted into the ambient environment as shown by Demarest (col.8, lines 61-67).

Triplett, Levine and Demarest do not specifically disclose an amount of volatile material carried within the reservoir or enclosed vessel.

Gillett discloses a fragrance vaporizing apparatus (col.1, lines 8-9) having a cylindrical housing (figure 1:48) into which a suitable amount of volatile liquid material between 1 to 20 ml is added (col.4, lines 29-30).With this volume range of volatile material, the heating element is able to control the rate of vaporization of the chemical agent and thereby extend the dispensing of the fragrance material well over 30 days (col.1, lines 26-30 and col.3, lines 35-37). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide an amount of volatile material between 1 to 20 ml into the modified reservoir unit of Triplett/Levine as modified by Demarest, since within this volume range of volatile material, the heating element is able to control the rate of vaporization of the chemical agent and thereby extend the dispensing of the fragrance material well over 30 days (col.1, lines 26-30 and col.3, lines 35-37).

As to the limitation that the measurement and calculation of the evaporation rate being done by drop shape analysis based on 30% of the volatile liquid remaining at ambient room temperature, Triplett, Levine, Demarest and Gillett are all silent. Different volatile liquids are known to have various different rates of evaporation which are also dependent upon temperature values, viscosity of the liquid, as well as the method of calculation. Evaporation rate at property of the volatile liquids at ambient room temperature achieves a recognized result of either rapid or slow emission of, for example, deodorizing material into ambient air. It would have been obvious to one of

ordinary skill in the art to choose or compose a volatile liquid having a desired evaporation rate to suite the conditions where evaporation would take place. One of ordinary skill in the art would devise a volatile liquid capable of evaporation to meet the needs of the consumer – i.e. rapid dissemination of fragrance, versus slow and steady release of a deodorant.

In addition, the disclosure does not show any evidence of criticality as to the use of the drop shape analysis method over other methods for determining evaporation rates. It would have been obvious to one of ordinary skill in the art to determine the optimum evaporation rate calculation method by routine experimentation since evaporation rate of volatile material is recognized as a result-effective variable.

Furthermore, as to the limitation that about 90% of the volatile liquid evaporates through the wick between within one and two months under ambient conditions at ambient room temperature when the wick is exposed to the surrounding environment, Triplett exposes the wick (figure 3:22) to the surrounding environment (wick 14 is exposed to the surrounding environment at ambient room temperature through vent system 16 as shown in figure 3). Triplett further teaches (col.7, lines 16-19) that the amount of evaporation of the fragrance is over 62 days or less (see table 2 and col.7, lines 16-19). As such, one of ordinary skill in the art would readily recognize that at least 90% of the volatile liquid must evaporate within 2 months. Therefore, 90% of the volatile liquid material evaporates through the wick within one and two months under ambient conditions at ambient room temperature within the modified device of Triplett.

Regarding claims 20-21, Triplett teaches that the volatile material is fragrance or insecticide (col.4, lines 43-46).

Regarding claim 22, Triplett teaches that the volatile liquid container (figure 3:14) is releasably secured (col.3, lines 56-58) to the housing (figure 3:12).

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967), Demarest et al (U.S.P.N. 6,361,752) and Gillett et al (U.S.P.N. 5,402,517) as applied to claim 13 and further in view of Lang (U.S.P.N. 7,018,644).

Triplett, Levine, Demarest and Gillett are silent with regard to specifically disclose a relative evaporation rate. Lang discloses air freshener and insecticidal liquid compositions that are used in air freshening evaporative devices (col.1, lines 15-18) where the composition is made up of a polar solvent, non-polar solvent, and a fragrance or an insecticide (col.2, lines 64-67). The components of the composition have evaporation rates that are relative to n-butyl acetate (co.4, lines 15-25 or col.6, lines 8-9. This is considered the relative evaporation rate) as such (See the Table in Example 1. For example, a non-polar solvent ,Isopar M, has a relative evaporation rate of less than 1, and a polar solvent, Dowanol DPM, has a relative evaporation rate of 3) it is particularly desirable for the composition to be formulated such that no residue of the solvent remains (col.2, lines 51-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide the modified device in Triplett/Levine/Demarest/Gillett with the polar/non-polar liquid composition, because

upon complete evaporation no residues of the solvent remains within the device (col.2, lines 51-55).

12. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967), Demarest (U.S.P.N. 6,361,752) and Gillett et al (U.S.P.N. 5,402,517)

Triplett and Levine fail to disclose using a fan.

Demarest discloses a volatile liquid vaporizing device (figure 9:130) using a fan (figure 9:156), since the use of a fan creates a flow of air through the housing and across the carrier material where vapors from the material are drawn into the air flow through the housing and is exhausted into the ambient environment (col.8, lines 61-67). In addition, Demarest's fan is capable of exhibiting various throughputs volumetric flow rates including the range of about 0.4 cubic feet per minute to about 0.45 cubic feet per minute. It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide a fan into the modified housing of Triplett/Levine, since the use of a fan creates a flow of air through the housing and across the carrier material where vapors from the material are drawn into the air flow through the housing and is exhausted into the ambient environment as shown by Demarest (col.8, lines 61-67).

13. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967), Demarest (U.S.P.N. 6,361,752) and Gillett et al (U.S.P.N. 5,402,517) as applied to claim 13 and further in view of Ito et al (U.S.P.N. 6,391,329).

Regarding claims 18-19, Triplett, Levine, Demarest and Gillett fail to teach the use of a fan that is operated intermittently. Ito's insecticide device uses a fan (figure 1:3) that is operated intermittently (col.12, lines 58-60) in order to attain an equilibrium concentration within the first 30-minute period and thereafter keeps releasing uniformaly and stably over 360 hours (col.13, lines 6-10). Furthermore, Ito's fan is capable of operating the air stream in an on and off of different ratio time intervals, including the ratio time interval of about 1 minute to 3 minutes. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the modified article of manufacture in Triplett/Levine/Demarest/Gillett with an intermittent operating fan in order to attain an equilibrium concentration within the first 30-minute period and thereafter keeps releasing uniformaly and stably over 360 hours as taught by Ito (col.13, lines 6-10).

14. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967), Demarest (U.S.P.N. 6,361,752) and Gillett et al (U.S.P.N. 5,402,517).

Triplett, Levine and Demarest are silent with respect to the amount of the volatile material used.

Gillett discloses a fragrance vaporizing apparatus (col.1, lines 8-9) having a cylindrical housing (figure 1:48) into which a suitable amount of volatile liquid material between 1 to 20 ml is added (col.4, lines 29-30), since within this volume range of volatile material, the heating element is able to control the rate of vaporization of the chemical agent and thereby extend the dispensing of the fragrance material well over

30 days (col.1, lines 26-30 and col.3, lines 35-37). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide an amount of volatile material between 1 to 20 ml into the modified reservoir unit of Triplett/Levine/Demarest, since within this volume range of volatile material, the heating element is able to control the rate of vaporization of the chemical agent and thereby extend the dispensing of the fragrance material well over 30 days as explained by Gillett (col.1, lines 26-30 and col.3, lines 35-37).

15. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967), Demarest (U.S.P.N. 6,361,752) and Gillett et al (U.S.P.N. 5,402,517) as applied to claim 13 and further in view of He et al (US 2002/0136886 A1).

Triplett, Levine, Demarest, and Gillett fail to disclose range values for the mean pore size of wicks. He dispenses fragrance material [0011] using polymeric wicks [0009] having average pore size from about 2 to about 70 microns [0057], because in such a pore range polymeric wicks showed no substantial fluid leakage upon inversion [0055]. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the modified article of manufacture in Triplett/Levine/Demarest/Gillett with a wick having an average pore size from about 2 to about 70 microns in order to have a polymeric wick that shows no substantial fluid leakage upon inversion as taught by He [0055].

16. Claims 25-26, 28, 31-33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al.

(U.S.P.N. 6,661,967) and further in view of Demarest et al (U.S.P.N. 6,361,752), Gillett et al (U.S.P.N. 5,402,517) and He et al(US 2002/0136886 A1).

Regarding claims 25 and 26, Triplett discloses an article of manufacture (figure 3:10) that is plugged in a conventional electrical outlet (col.4, lines 60-62) comprising: a housing (figure 3:12); the volatile liquid in a reservoir (col.4, lines 42-46), a wick (22) extending from the reservoir upwardly in the housing, and a heater (20) in the housing, electrically connected to the plug unit (18).

Triplett fails to teach the following: not heating the wick above ambient room temperature, the inclusion of a fan, the amount of volatile material carried within the enclosed reservoir, the method of calculating his various evaporation rates, (for example, measuring and calculating by drop shape analysis), the makeup material for the wick, and the wick extending between the volatile liquid and the air stream.

Levine discloses a liquid vaporizer having a wick and a heating element (figure 1) where the heating element can be set to various resistance values (col.2, lines 10-15) in order to generate different levels of fragrance output (col.2, lines 4-6). Levine goes on to teach that in one embodiment, the temperature of the wick is maintained near an ambient temperature (col.10, lines 26-28; this teaching is considered to meet the newly added limitation that the wick is not being heated above ambient room temperature by a heating element). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the device in Triplett with the heating element so that different levels of fragrance output can be generated as taught by Levine (col.2, lines 4-6).

Levine fails to teach the following: the inclusion of a fan, the amount of volatile material carried within the enclosed reservoir, the method of calculating his various evaporation rates, (for example, measuring and calculating by drop shape analysis), the makeup material for the wick, and the wick extending between the volatile liquid and the air stream.

Demarest discloses a volatile liquid vaporizing device (figure 9:130) where a wick (figure 9:144) is extending between the volatile liquid (unlabeled volatile liquid material within vessel 136 in figure 9) and the air stream, which is created by the fan shown as 156 in figure 9. The use of a fan creates a flow of air through the housing and across the carrier material where vapors from the material are drawn into the air flow through the housing and are exhausted into the ambient environment (col.8, lines 61-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide a fan into the modified housing of Triplett/Levine, since the use of a fan creates a flow of air through the housing and across the carrier material where vapors from the material are drawn into the air flow through the housing and is exhausted into the ambient environment as shown by Demarest (col.8, lines 61-67).

Triplett, Levine and Demarest do not specifically disclose an amount of volatile material carried within the reservoir or enclosed vessel.

Gillett discloses a fragrance vaporizing apparatus (col.1, lines 8-9) having a cylindrical housing (figure 1:48) into which a suitable amount of volatile liquid material between 1 to 20 ml is added (col.4, lines 29-30). With this volume range of volatile material, the heating element is able to control the rate of vaporization of the chemical

agent and thereby extend the dispensing of the fragrance material well over 30 days (col.1, lines 26-30 and col.3, lines 35-37). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide an amount of volatile material between 1 to 20 ml into the modified reservoir unit of Triplett/Levine as modified by Demarest, since within this volume range of volatile material, the heating element is able to control the rate of vaporization of the chemical agent and thereby extend the dispensing of the fragrance material well over 30 days (col.1, lines 26-30 and col.3, lines 35-37).

As to the limitation that the measurement and calculation of the evaporation rate being done by drop shape analysis based on 30% of the volatile liquid remaining at room temperature, Triplett, Levine, Demarest and Gillett are all silent. Different volatile liquids are known to have various different rates of evaporation which are also dependent upon temperature values, viscosity of the liquid, as well as the method of calculation. Evaporation rate property of the volatile liquids achieves a recognized result of either rapid or slow emission of, for example, deodorizing material into ambient air. It would have been obvious to one of ordinary skill in the art to choose or compose a volatile liquid having a desired evaporation rate to suite the conditions where evaporation would take place. One of ordinary skill in the art would devise a volatile liquid capable of evaporation to meet the needs of the consumer – i.e. rapid dissemination of fragrance, versus slow and steady release of a deodorant.

In addition, the disclosure does not show any evidence of criticality as to the use of the drop shape analysis method over other methods for determining evaporation

rates. It would have been obvious to one of ordinary skill in the art to determine the optimum evaporation rate calculation method by routine experimentation since evaporation rate of volatile material is recognized as a result-effective variable.

Furthermore, as to the limitation that about 90% of the volatile liquid evaporates through the wick between within one and two months under ambient conditions at ambient room temperature when the wick is exposed to the surrounding environment, Triplett exposes the wick (figure 3:22) to the surrounding environment (wick 14 is exposed to the surrounding environment at ambient room temperature through vent system 16 as shown in figure 3). Triplett further teaches (col.7, lines 16-19) that the amount of evaporation of the fragrance is over 62 days or less (see table 2 and col.7, lines 16-19). As such, one of ordinary skill in the art would readily recognize that at least 90% of the volatile liquid must evaporates within 2 months. Therefore, 90% of the volatile liquid material evaporates through the wick within one and two months under ambient conditions at ambient room temperature within the modified device of Triplett.

Triplett, Levine, Demarest and Gillett fail to teach the use of ultra high molecular weight high density polyethylene as wick material.

He dispenses fragrance material [0011] using polymeric wicks [0021] having ultra high molecular weight high density polyethylene material, because such material offers substantially improved performance as well as exhibiting suitable mechanical, chemical, and thermodynamic stability [0021]. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the modified article of manufacture in Triplett/Levine/Demarest/Gillett with ultra high molecular weight high density

polyethylene material, because such material offers substantially improved performance as well as exhibiting suitable mechanical, chemical, and thermodynamic stability as taught by He [0021].

As to the limitation that the measurement and calculation of the evaporation rate being done by drop shape analysis based on 30% of the volatile liquid remaining at ambient room temperature, Triplett, Levine, Demarest and Gillett are all silent, however, as shown above, Triplet discloses an evaporation rate value that falls within the claimed range without specifically teaching how this rate is measured and calculated. Different volatile liquids are known to have various different and inherent rates of evaporation where also at different temperature values including ambient room temperature value, the evaporation rate property of the volatile liquids achieves a recognize result of either rapid or slow emission of, for example, deodorizing material into ambient air. The disclosure does not show an evidence of criticality of the drop shape analysis method over other methods for determining evaporation rates. It would have been obvious to one of ordinary skill in the art to determine the optimum evaporation rate method by routine experimentation since evaporation rate of volatile material is recognized as a result-effective variable.

Regarding claim 28, Demarest's fan is capable of exhibiting various throughputs volumetric flow rates including the range of about 0.4 cubic feet per minute to about 0.45 cubic feet per minute. It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide the modified article of manufacture in Triplett/Levine with a fan, since the use of a fan creates a flow of air through the housing

and across the carrier material where vapors from the material are drawn into the air flow through the housing and is exhausted into the ambient environment as shown by Demarest (col.8, lines 61-67).

Regarding claims 31-32, Triplett teaches that the volatile material is fragrance or insecticide (col.4, lines 43-46).

Regarding to claim 33, Triplett teaches that the volatile liquid container (figure 3:14) is releasably secured (col.3, lines 56-58) to the housing (figure 3:12).

Regarding claim 35, Triplett in view of Levine and Demarest does not teach that the wick (figure 6:210) is in alignment with the fan (figure 6:260. The wick and the fan are considered in alignment with the imaginary z-axis) to immerse the wick into the air stream (the upper part of wick 210 is considered to be immersed in the air stream created by fan 260 in figure 6), because a fan creates an airstream that entrains the evaporated liquid formulation and assists in the dispersion of the chemical active into the surrounding environment (col.4, lines 49-52). It would have been obvious to one of ordinary skill in the art at the time of the invention to align the wick with the fan in the modified device of Triplett/Levine in order to improve distribution of the volatile liquid.

17. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967), Demarest et al (U.S.P.N. 6,361,752), Gillett et al (U.S.P.N. 5,402,517), He et al (US 2002/0136886 A1) as applied to claim 25 and further in view of in view of Lang (U.S.P.N. 7,018,644).

Triplett, Levine, Demarest, Gillett, and He are silent with regard to specifically disclosing a relative evaporation rate. Lang discloses air freshener and insecticidal liquid compositions that are used in air freshening evaporative devices (col.1, lines 15-18) where the composition is made up of a polar solvent, non-polar solvent, and a fragrance or an insecticide (col.2, lines 64-67). The components of the composition have evaporation rates that are relative to n-butyl acetate (co.4, lines 15-25 or col.6, lines 8-9. This is considered the relative evaporation rate) as such (See the Table in Example 1. For example, a non-polar solvent ,Isopar M, has a relative evaporation rate of less than 1, and a polar solvent, Dowanol DPM, has a relative evaporation rate of 3) it is particularly desirable for the composition to be formulated such that no residue of the solvent remains (col.2, lines 51-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide the modified article of manufacture in Triplett/Levine/Demarest/Gillett/He with the polar/non-polar liquid composition, because upon complete evaporation no residues of the solvent remains within the device as taught by Lang (col.2, lines 51-55).

18. Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967), Demarest et al (U.S.P.N. 6,361,752), Gillett et al (U.S.P.N. 5,402,517), He et al (US 2002/0136886 A1) as applied to claim 25 and further in view of Ito et al (U.S.P.N. 6,391,329).

Regarding claims 29-30, Triplett, Levine, Demarest, Gillett, and He do not specifically teach the use of a fan that is operated intermittently. Ito's insecticide device

uses a fan (figure 1:3) that is operated intermittently (col.12, lines 58-60) in order to attain an equilibrium concentration within the first 30-minute period and thereafter keeps releasing uniformaly and stably over 360 hours (col.13, lines 6-10). Furthermore, Ito's fan is capable of operating the air stream in an on and off of different ratio time intervals, including the ratio time interval of about 1 minute to 3 minutes. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the modified article of manufacture in Triplett/Levine/Demarest/Gillett/He with an intermittent operating fan in order to attain an equilibrium concentration within the first 30-minute period and thereafter keeps releasing uniformaly and stably over 360 hours as taught by Ito (col.13, lines 6-10).

19. Claims 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967) and further in view of Demarest et al (U.S.P.N. 6,361,752), Gillett et al (U.S.P.N. 5,402,517) and He et al (US 2002/0136886 A1).

Regarding claim 34, Triplett, Levine, Demarest, and He are silent with respect to the amount of the volatile material used.

Gillett discloses a fragrance vaporizing apparatus (col.1, lines 8-9) having a cylindrical housing (figure 1:48) into which a suitable amount of volatile liquid material between 1 to 20 ml is added (col.4, lines 29-30), since within this volume range of volatile material, the heating element is able to control the rate of vaporization of the chemical agent and thereby extend the dispensing of the fragrance material well over 30 days (col.1, lines 26-30 and col.3, lines 35-37). It would have been obvious to one of

ordinary skill in the art at the time of the invention to further provide an amount of volatile material between 1 to 20 ml into the reservoir unit of the modified device of Triplett/Levine/Demarest, since within this volume range of volatile material, the heating element is able to control the rate of vaporization of the chemical agent and thereby extend the dispensing of the fragrance material well over 30 days as explained by Gillett (col.1, lines 26-30 and col.3, lines 35-37).

Regarding claim 36, Triplett, Levine, Demarest, and Gillett are silent about disclosing range values for the mean pore size of wicks. He dispenses fragrance material [0011] using polymeric wicks [0009] having average pore size from about 2 to about 70 microns [0057], because in such a pore range polymeric wicks showed no substantial fluid leakage upon inversion [0055]. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the modified article of manufacture in Triplett/Levine/Demarest/Gillett with a wick having an average pore size from about 2 to about 70 microns in order to have a polymeric wick that shows no substantial fluid leakage upon inversion as taught by He [0055].

20. Claims 37-38 and 44-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967) and further in view of Lang (U.S.P.N. 7,018,644).

Regarding claim 37 and 38, Triplett discloses an article of manufacture (figure 3:10) that is plugged in a conventional electrical outlet (col.4, lines 60-62) comprising: a housing (figure 3:12); the volatile liquid in a reservoir (col.4, lines 42-46), a wick (22)

extending from the reservoir upwardly in the housing, and a heater (20) in the housing, electrically connected to the plug unit (18).

As to the limitation that the measurement and calculation of the evaporation rate that occurs at ambient room temperature being done by drop shape analysis based on 30% of the volatile liquid remaining at ambient room temperature, Triplett, Demarest and Gillett are all silent. Different volatile liquids are known to have various different rates of evaporation which are also dependent upon temperature values, viscosity of the liquid, as well as the method of calculation. Evaporation rate property of the volatile liquids achieves a recognized result of either rapid or slow emission of, for example, deodorizing material into ambient air. It would have been obvious to one of ordinary skill in the art to choose or compose a volatile liquid having a desired evaporation rate including evaporation rate at ambient room temperature to suite the conditions where evaporation would take place. One of ordinary skill in the art would devise a volatile liquid capable of evaporation to meet the needs of the consumer – i.e. rapid dissemination of fragrance, versus slow and steady release of a deodorant.

In addition, the disclosure does not show any evidence of criticality as to the use of the drop shape analysis method over other methods for determining evaporation rates. It would have been obvious to one of ordinary skill in the art to determine the optimum evaporation rate calculation method by routine experimentation since evaporation rate of volatile material is recognized as a result-effective variable.

As to the limitation that the measurement and calculation of the evaporation rate being done by drop shape analysis based on 30% of the volatile liquid remaining at

ambient room temperature, Triplett, Demarest and Gillett are all silent, however, as shown above, Triplet discloses an evaporation rate value that falls within the claimed range without specifically teaching how this rate is measured and calculated. Different volatile liquids are known to have various different and inherent rates of evaporation where also at different temperature values, the evaporation rate property of the volatile liquids achieves a recognize result of either rapid or slow emission of, for example, deodorizing material into ambient air. The disclosure does not show an evidence of criticality of the drop shape analysis method over other methods for determining evaporation rates. It would have been obvious to one of ordinary skill in the art to determine the optimum evaporation rate method by routine experimentation since evaporation rate of volatile material is recognized as a result-effective variable.

Triplett fails to teach not heating the wick above ambient room temperature and also fails to teach values for relative evaporation rates.

Levine discloses a liquid vaporizer having a wick and a heating element (figure 1) where the heating element can be set to various resistance values (col.2, lines 10-15) in order to generate different levels of fragrance output (col.2, lines 4-6). Levine goes on to teach that in one embodiment, the temperature of the wick is maintained near an ambient temperature (col.10, lines 26-28; this teaching is considered to meet the newly added limitation that the wick is not being heated above ambient room temperature by a heating element). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the device in Triplett with the heating element so that

different levels of fragrance output can be generated as taught by Levine (col.2, lines 4-6).

Levine fails to teach values for relative evaporation rates.

Lang discloses air freshener and insecticidal liquid compositions that are used in air freshening evaporative devices (col.1, lines 15-18) where the composition is made up of a polar solvent, non-polar solvent, and a fragrance or an insecticide (col.2, lines 64-67). The components of the composition have evaporation rates that are relative to n-butyl acetate (co.4, lines 15-25 or col.6, lines 8-9. This is considered the relative evaporation rate) as such (See the Table in Example 1. For example, a non-polar solvent ,Isopar M, has a relative evaporation rate of less than 1, and a polar solvent, Dowanol DPM, has a relative evaporation rate of 3) it is particularly desirable for the composition to be formulated such that no residue of the solvent remains (col.2, lines 51-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide the modified apparatus in Triplett/Levine with the polar/non-polar liquid composition, because upon complete evaporation no residues of the solvent remains within the device (col.2, lines 51-55).

As to the limitation that the measurement and calculation of the evaporation rate being done by drop shape analysis based on 30% of the volatile liquid remaining at ambient room temperature, Triplett, Levine and Lang are all silent, however, as shown above, Triplet discloses an evaporation rate value that falls within the claimed range without specifically teaching how this rate is measured and calculated. Different volatile liquids are known to have various different and inherent rates of evaporation where also

at different temperature values, the evaporation rate property of the volatile liquids achieves a recognize result of either rapid or slow emission of, for example, deodorizing material into ambient air. The disclosure does not show an evidence of criticality of the drop shape analysis method over other methods for determining evaporation rates. It would have been obvious to one of ordinary skill in the art to determine the optimum evaporation rate method by routine experimentation since evaporation rate of volatile material is recognized as a result-effective variable.

Regarding claims 44-45, Triplett teaches that the volatile material is fragrance or insecticide (col.4, lines 43-46).

Regarding claim 46, Triplett teaches that the volatile liquid container (figure 3:14) is releasably secured (col.3, lines 56-58) to the housing (figure 3:12).

Regarding claim 47, as to the limitation that about 90% of the volatile liquid is capable of evaporating through the wick between within one and two months under ambient conditions when the wick is exposed to the surrounding environment, Triplett exposes the wick (figure 3:22) to the surrounding environment (wick 14 is exposed to the surrounding environment through vent system 16 as shown in figure 3). Triplett further teaches (col.7, lines 16-19) that the amount of evaporation of the fragrance is over 62 days or less (see table 2 and col.7, lines 16-19). As such, one of ordinary skill in the art would readily recognize that at least 90% of the volatile liquid must evaporate within 2 months. Therefore, 90% of the volatile liquid material is capable of evaporating through the wick within one and two months under ambient conditions within the modified device of Triplett.

21. Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967) and Lang (U.S.P.N. 7,018,644) as applied to claim 37 and further in view of Demarest (U.S.P.N. 6,361,752).

Triplett, Levine and Lang do not specifically disclose using a fan. Demarest discloses a volatile liquid vaporizing device (figure 9:130) using a fan (figure 9:156), since the use of a fan creates a flow of air through the housing and across the carrier material where vapors from the material are drawn into the air flow through the housing and is exhausted into the ambient environment (col.8, lines 61-67). In addition, Demarest's fan is capable of exhibiting various throughputs volumetric flow rates including the range of about 0.4 cubic feet per minute to about 0.45 cubic feet per minute. It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide a fan into the modified housing of Triplett/Levine/Lang, since the use of a fan creates a flow of air through the housing and across the carrier material where vapors from the material are drawn into the air flow through the housing and is exhausted into the ambient environment as shown by Demarest (col.8, lines 61-67).

22. Claims 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967) and Lang (U.S.P.N. 7,018,644) as applied to claim 37 and further in view of Ito et al (U.S.P.N. 6,391,329).

Regarding claims 42-43, Triplett, Levine and Lang do not specifically teach the use of a fan that is operated intermittently. Ito's insecticide device uses a fan (figure 1:3)

that is operated intermittently (col.12, lines 58-60) in order to attain an equilibrium concentration within the first 30-minute period and thereafter keeps releasing uniformaly and stably over 360 hours (col.13, lines 6-10). Furthermore, Ito's fan is capable of operating the air stream in an on and off of different ratio time intervals, including the ratio time interval of about 1 minute to 3 minutes. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the modified article of manufacture in Triplett/Levine/Lang with an intermittent operating fan in order to attain an equilibrium concentration within the first 30-minute period and thereafter keeps releasing uniformaly and stably over 360 hours as taught by Ito (col.13, lines 6-10).

23. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) in view of Levine et al. (U.S.P.N. 6,661,967) and Lang (U.S.P.N. 7,018,644) as applied to claim 37 and further in view of He et al (US 2002/0136886 A1).

Triplett, Levine and Lang are silent about disclosing range values for the mean pore size of wicks. He dispenses fragrance material [0011] using polymeric wicks [0009] having average pore size from about 2 to about 70 microns [0057], because in such a pore range polymeric wicks showed no substantial fluid leakage upon inversion [0055]. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the modified article of manufacture in Triplett/Levine/Lang with a wick having an average pore size from about 2 to about 70 microns in order to have a polymeric wick that shows no substantial fluid leakage upon inversion as taught by He [0055].

Response to Arguments

24. Applicant's arguments filed on 5/18/09 have been fully considered but they are not persuasive.

On page 11 of the Remarks/Arguments, Applicant argues that the omission of a heater in the drawings, the specification and the claims, by its very nature, is an indication that the device recited in the claims at issue does not use a heating element.

The disclosure does not specifically teach excluding a heating element to heat the wick so that evaporation occurs at ambient room temperature. One can use a heating element that is set to heat the wick up to ambient room temperature and therefore evaporates the liquid at ambient room temperature. Again, it is suggested that applicant employ closed language instead of a negative limitation, to exclude the heater from the claimed device.

On pages 11-13 of the Remarks/Arguments section, Applicant argues that Triplett does not teach not to heat the wick above room temperature by a heating element; and that a measurement of evaporation rates through a wick proximate to a heater is not the same thing as a measurement of evaporation rates as measured and calculated by drop shape analysis at room temperature.

The newly applied Levine reference teaches that the temperature of the wick is maintained near an ambient temperature (col.10, lines 26-28; this teaching is considered to meet the newly added limitation that the wick is not being heated above ambient room temperature by a heating element).

As to applicants' arguments regarding that a measurement of evaporation rates through a wick proximate to a heater is not the same thing as a measurement of

evaporation rates as measured and calculated by drop shape analysis at room temperature; providing a volatile liquid with a desired evaporation rate, as calculated by any method, would have been within the skill of the artisan. In the dispensing of volatile liquids, such as fragrances, one of ordinary skill in the art would have desired to provide a liquid having the evaporation characteristics necessary to suit the application. One of ordinary skill in the art would have been able to determine, through routine experimentation, a calculation method to determine an effective evaporation rate which suited applicant's needs – such as slow (considered occurring at ambient room temperature) or fast (using a heater at high temperatures) evaporation, depending upon the chemical being evaporated, the degree of penetration of the scent, and the saturation value required.

Conclusion

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

26. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571)272-1271. The examiner can normally be reached on M-F 9:00-5:30.

28. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. R. C./

/Jill Warden/
Supervisory Patent Examiner, Art Unit 1797